

Managing Change: Capability, Adaptability, and Transformation

by Hans Binnendijk and Richard L. Kugler

Overview

The Bush administration defense review is pointing to an era of far-reaching change in military strategy, forces, and technology. To succeed, this effort must be guided by a new set of strategic precepts. Since 1997, the precepts of shape, respond, prepare have helped guide how national security policy has approached change. In the coming years, capability, adaptability, and transformation can perform a similar function. The first and third precepts are well documented. The second, however, needs greater attention—not only because adaptability is important although easily overlooked, but also because it is a bridge between the other two precepts. These three precepts incorporate the main characteristics needed by the Armed Forces:

- A core military capability to win wars today and support peacetime goals—a near-term concern.
- The adaptability to modify that existing core capability to meet new strategic conditions—a mid-term concern.
- A wise transformation that reorients the military to take advantage of new technologies for the long term.

These precepts are compatible but must be pursued in a balanced and integrated manner that reflects their interconnection. The pursuit of near-term capabilities should be accompanied by enhanced efforts to create broader options for the mid term, in ways that establish a sound strategic foundation for longer-term visions. The near-term capability of the military can be preserved by keeping them sufficiently large and ready and by

improving them in selected areas. In the mid term, their flexibility can be strengthened by adopting broader employment plans, reengineering current organizational structures, and fielding emerging technologies. In the long term, they can be transformed not only by modernizing existing weapons, but also by acquiring new types of platforms and technologies. Even in an era of tight fiscal constraints, this threefold challenge can be met if a balanced approach is followed—thereby preserving the hard-won strategic effectiveness of the military not only in the coming years but the distant future as well.

New Requirements and Technologies

U.S. defense strategy and forces are entering an era of major change partly because the globalizing, turbulent world is producing new threats, requirements, and missions. Equally important, new military technologies are emerging far more quickly than they did over the past decade. Information technology is one example, but parallel developments are taking place in several other areas, for example, missile defenses, precision deep-strike weapons, ultra-smart munitions, robotics, stealth aircraft, new naval ship designs, long-range artillery, lightweight armor, and nanotechnology. As these new technologies arrive at an accelerating rate, they will interact with new threats and strategic requirements to create opportunities for U.S. military forces to innovate in responsive ways or risk being left behind the future's power curve.

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An era of new technology raises the prospect of creating new and better forces for the early 21st century. But as change is pursued, it must be balanced with continuity so that existing, still-important assets are retained. New concepts must be carefully studied to separate the good from the bad. These considerations necessitate that change be carefully managed. Although shape, respond, prepare—or concepts like them—will continue to be needed for national security policy, a separate set of defense strategy precepts also will be needed to help guide the critical task of configuring U.S. forces for the coming era.

Some analysts call for keeping current U.S. forces highly ready and capable to handle global strategic challenges over the next few years. Others deemphasize the near-term, instead urging a vigorous transformation focused on the distant future, 15–20 years out. Often lost in the clamor is the need to be flexibly adaptable for the dangerous mid term, when strategic conditions can change radically but entirely new U.S. forces cannot be built in response.

The new mantra suggested herein contains a strategic vision that is comprehensive in ways that produce an effective mix of continuity, evolutionary change, and revolutionary change. The mantra suggests that the Armed Forces of the future must be capable, adaptable, and transformed in ways enabling them to perform well throughout the coming years and decades. It implies that although priorities must be set when resources are constrained, no single characteristic or timeframe can be pursued to the damaging neglect of others. It spreads the agenda of change, along with its associated risks and opportunities, over time. Indeed, its goal is to make sustained, affordable, and achievable improvements to the military in all three areas and all three timeframes.

Staying Capable with Existing Technologies

Within the Department of Defense, the goal of keeping forces highly capable has acquired the status of dogma. But what exactly does the term *highly capable* mean? Capability can be seen as a military's current force structure, readiness, and armaments, set against the missions that force is asked to undertake. It is a measure of strategic effectiveness: the capacity of forces to perform key missions and to achieve the twin goals of decisively defeating opponents on the battlefield and strongly supporting U.S. foreign policy activities. While requirements for effectiveness in war and peace are sometimes hard to pinpoint, there is a big difference between a posture that solidly meets them and one that falls short.

Staying capable is always important, but it is a special priority in the near term because crises and wars can erupt suddenly, with no time for preparation. Some analysts judge that world affairs will be

peaceful in the next few years, thus creating a pause that allows for downgrading near-term capability to prepare for the distant future. A stance based on this judgment may not be prudent. Since 1991, U.S. forces have been called upon to fight regional wars in the Persian Gulf and in the Balkans and to carry out many other crisis operations and interventions. Even with a declaratory policy of more selective engagement in lesser contingencies, pressures from allies and enemies may draw the military into a number of similar events. With globalization gaining momentum, the democratic community is becoming wealthier and more peaceful, but globalization also has a polarizing effect in many regions that are neither wealthy nor stable. The world remains chaotic, capable of producing conflict at a moment's notice, often in surprising ways.

Measures focused on near-term preparedness consume about two-thirds of the defense budget, a higher portion than in earlier eras. While the effect often has been to reduce funds for procurement, resources have increased for personnel, training, and operations and maintenance (O&M) that support the high tempo of combat forces and their support assets. Because these efforts are quite vigorous, the Armed Forces are highly capable in both their raw power and strategic effectiveness. America's overseas presence of about 235,000 troops provides a capability to influence security affairs in all key regions of the world. The capacity to project power quickly to crisis zones and carry out powerful operations allows them to win wars decisively, with few losses. Keeping them capable, however, is not something to be taken for granted or interpreted in static, near-term ways. Highly ready units with a gleaming arsenal of weapons are no guarantee that the U.S. military will forever be able to attain its peacetime security goals or to defeat its wartime adversaries. In particular, battlefield superiority is relative, a product of many factors, and a transient status that is hard to achieve yet easy to lose.

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For this reason, a high level of capability must constantly be sought, preserved, and re-ratified. Because new technologies appear and new threats regularly emerge, the military must continually improve. If no new threats appear, improvements normally can be gradual, but over a decade, they must have a significant cumulative effect. If the Armed Forces are strengthened in appropriate ways, they will retain an adequate core capability, not only in absolute terms but also in relative terms of missions, goals, and requirements. If not, they will steadily lose this capability even if, on the surface, they appear as impressive as before.

Because a sufficient quantity of forces is needed to carry out national strategy, the foundation of a core capability is a posture that fields adequate numbers of joint combat forces: ground, air, and naval assets. The current posture of 13 Army and Marine Corps active divisions, 12 Navy carrier battle groups and 316 major ships, and 20 Air Force fighter wings has met this requirement since 1993. But often it has been stretched thin by the need to provide a capability to fight and win two major theater wars (MTWs) while also carrying out other missions. In response, calls have arisen in recent years for enlarging the posture by 10–15 percent, perhaps recreating the Base Force of the early 1990s, which had 15 divisions, 26 fighter wings, 12 carriers,

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and 400 ships. Conversely, budgetary pressures and a desire by some to shed engagement and peacekeeping missions have resulted in recommendations to reduce the current posture by about 20 percent, for example, to 11 divisions, 16 fighter wings, 10 carrier battle groups, and 260 ships.

Because the international climate seems destined to remain chaotic in key regions, force requirements likely will remain in the vicinity of today's levels. Suffice it to say that if the Armed Forces are enlarged, they will acquire valuable added capabilities for the coming era. If they are reduced, they will have less capacity not only to deter MTWs but also to carry out other missions such as overseas engagement, peacekeeping, and crisis response. While the current posture is not sacrosanct, major force reductions likely would necessitate a smaller overseas presence, a truncated strategy, a lowered leadership profile in Europe and elsewhere, and greater reliance on allied contributions. U.S. forces thus would be less effective even though the quality of individual units would remain high.

Budgetary pressures will probably mandate some cutbacks in near-term capability to fund future investments. If so, the natural instinct may be to cut force structure. An alternative would be to cut operating tempo by, for example, reducing overseas engagements and other activities if U.S. foreign policy permits this step. But that may not be easy to accomplish given the pace of world events. A third option is to adjust readiness. Readiness for warfighting is not an immutable goal. The Navy traditionally operates with tiered readiness, and the new Air Force expeditionary concept also introduces a higher degree of tiered readiness. The Army has stricter readiness standards for all of its forces. Perhaps a broader, staggered readiness profile also should be considered for the Army, in which some forces can respond instantly but others mobilize more slowly. If so, greater tiered readiness could permit both sufficient forces and adequate readiness, rather than sacrificing the former on behalf of the latter. In addition, reductions in spending on domestic defense infrastructure and low-priority O&M may provide a viable means to generate savings, thereby reducing the need to sacrifice either force structure or readiness.

The act of strengthening the military often is seen as a long-term endeavor propelled by modernization and procurement. Yet its quality can be enhanced through multiple, relatively less expensive technologies and related measures that take effect in the near term. One measure is to increase joint training and exercises so that forces from all services become better able to work together. A second measure is to increase the use of equipment prepositioning, swift-deploying forces, and standoff strike assets to become better at forcible intervention in conflicts where adversaries can seriously contest U.S. access. A third measure is to acquire more low density/high demand assets such as electronic warfare aircraft, unmanned aerial vehicles, naval special forces, construction engineers, and civil administrators. Because these specialized assets are in short supply, adding more of them could enhance the ability of the military to perform a wide

range of missions, from peacekeeping to warfighting. A fourth near-term measure is to add more active-duty Army combat service support forces in areas where they are needed, thus reducing the current dependence on Reservists. Alternatively, the readiness of Reserve component combat brigades in the Army could be increased, perhaps by affiliating them more closely with active units, as was done during the Cold War. Yet another measure is to acquire larger stocks of cruise missiles and other smart munitions, which often are in short supply. Measures like these are not publicly visible and often escape notice even within the Department of Defense, but they can significantly enhance near-term U.S. military capabilities.

Becoming Adaptable with Emerging Technologies

In the clamorous debate between the near term and the long term, adaptability in the mid term often is overlooked. Yet it deserves greater attention not only because a greater range of military options will be needed in the mid term, but also because it helps facilitate the transition from near-term capabilities to longer-term transformation. Equally important, it helps focus the design of future U.S. forces not only on their characteristics but also on their ability to perform new missions and operations. Skipping this step could have very negative consequences for the Armed Forces.

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are so rigidly prepared for one set of wars and operations that they cannot handle other events. Virtually everybody agrees that the military should be adaptable and flexible. But while these terms are often endorsed in key DOD documents, they are seldom analyzed in any depth. Left unaddressed are key questions: How do we know when U.S. forces are sufficiently adaptable? How can adaptability best be increased? How can it be lost, per-

haps unintentionally? What is the agenda of the future? Because adaptability is becoming more important, the time has arrived to elevate it to a position of major status in defense plans. Similar to capability, it should not be taken for granted. Instead, it must be consciously created and nurtured in ways that respond to the changing times. The need for greater attention to adaptability may require appropriate changes to the planning, programming, and budgeting system and acquisition processes, as well as operational planning.

Forces are adaptable when they can respond to new situations and unexpected challenges by making quick, effective changes in how they are organized and operated. Adaptability calls for a menu of capabilities, choices, and options from a force posture that can perform many different missions reasonably well, rather than one mission superbly. Adaptability includes the strategic flexibility and mental agility to depart quickly from a prepared script to sensibly improvise a new one. This is not a natural hallmark of most forces, which often are tailored to carry out a single dominant design in ways that can leave them ill-prepared to do anything different. For example, the French

army of 1940 was highly capable of linear defense but rigidly inflexible in waging maneuver warfare. As a result, it fell victim to *Blitzkrieg*.

During the Cold War, U.S. strategy called for the flexible capacity to climb the escalation ladder slowly and carefully, one rung at a time. Today, adaptability is the new watchword, reflecting the uncertain volatility of modern international politics and military affairs. It calls for the capacity to perform swift, graceful U-turns in strategic and operational directions: to handle not only expected challenges but also new and surprising events that compel the military to think and act quite differently than before. For example, waging regional war in the Persian Gulf or Korea would mandate a strong military response, but not necessarily adaptation. By contrast, waging a different type of war somewhere new, in response to unforeseen events, could require both high military capability and considerable adaptability.

In the future, the Armed Forces seem likely to be called upon to operate in a wider set of geographic locations than now—including along the turbulent southern belt stretching from the Balkans to the Great Asian crescent. In addition, the spectrum of military conflict is widening and mutating. Whereas MTWs have been a dominant concern of the past decade, the future may produce more conflicts at both the upper and lower end of the spectrum. For example, conflict with China, tension with a nuclear Iran, intervention in Colombia, a major terrorist or cyber attack event, attacks on space assets, or massive peacekeeping in Central Asia would all present challenges not faced in traditional MTW scenarios. Such events are possible in the mid term and make this a potentially dangerous and chaotic time.

Fortunately, the Armed Forces possess many of the physical characteristics needed to adapt to these new strategic conditions. This is the case not only because of their size and strength, but also because they are so multifaceted. They field a balanced mix of ground, air, and naval forces that are backed by logistic support and other sustainment assets. Each service component, moreover, is diverse: the Army, for example, has a full panoply of armored, mechanized, light infantry, airborne, and air assault divisions. The Navy, Marine Corps, and Air Force are similarly equipped. The presence of U.S. military commands in all key regions further enhances this flexibility. In theory, forces from all four services can be brought together for joint operations, swiftly deployed overseas aboard airlift and sealift assets, and employed to carry out a range of battlefield campaigns. In practice, this strategic and operational flexibility was demonstrated in the Persian Gulf and Kosovo conflicts. Current forces are not perfect, but they are the most versatile in the world—a product of concerted effort over many years.

Even so, the emerging situation merits a sober stocktaking of the military's adaptability coupled with a careful appraisal of ways to foster it. Enhancing adaptability normally does not require new platforms, but instead efforts to organize and employ forces more effectively. A main challenge will be that of deciding whether all forces should have a broad set of response options, or instead, some

forces should specialize in specific missions. The Marine Corps emphasizes the former approach, with its three-block-war that every marine is trained to handle. By contrast, the Army is pursuing the latter in its near-term plans—even though plans call for an eventual swing back to the former. Both approaches have their attractions and liabilities. The task is to guide the preparations of all services so that an adequate mix of flexible capabilities is maintained.

A key risk of deep reductions in force is that they could reduce adaptability, not only by shrinking total forces but also by retiring many of the special assets that provide today's diversity. Even if adequate numbers are retained, the U.S. military will be adaptable only if it can promptly combine and recombine its modular assets to create force packages that respond to the unique demands of each situation. Normally, joint forces will be needed for each crisis, but the exact composition and mix could vary greatly. Meeting this challenge will require an adaptive approach to force planning, one that assigns forces to commands in alterable ways and that avoids rigid reliance on formulas. Training to respond to the broader array of missions will be critical. The combat forces will need to be supported by well-tailored logistics assets, new types of prepositioned materiel on land and at sea, and possibly new overseas bases and facilities. Special care will be needed to ensure

that such resources are acquired, especially if they are not a natural byproduct of standard simulations, modeling, and programming.

The need for strategic and operational adaptability is a key reason why the Department of Defense should craft a broader planning framework to replace the two-MTW standard. Forces will need to remain capable of waging MTWs, including in the Persian Gulf and Korea. But a narrow preoccupation with two concurrent MTWs in these places can create blinders to the wider set of conflicts and new geostrategic settings that might be encountered, perhaps leaving the military unprepared to deal with them. A new planning framework should be attentive to the normal needs of key commanders in chief (CINCs) in situations short of regional war: their many missions during peacetime and small crises create special requirements for forces and other resources. A new planning framework should also create a different wartime standard of $1 + \frac{1}{2} + \frac{1}{2}$ conflicts, namely, a single larger theater war, coupled with two smaller warfighting operations, one with high-technology strike forces and the other with traditional forces capable of low-intensity combat. Meeting such a standard would produce a military force with much greater adaptability for the medium term.

Regardless of the standard adopted, each major CINC should have a family of operation plans (OPLANs) for small, medium, and large wars. Today, CINCs typically are prepared for small and big conflicts, but their response options could be improved if they are given medium-sized strike packages that can be employed flexibly in a wide range of settings. Improvements of this sort could help provide not only flexible OPLANs but also new ways to examine the forces to ensure that they are adequately versatile. The menu of military options can be further broadened by improvements in networks,

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Technologies for the Mid Term

In recent years, the Pentagon has developed a new generation of military technologies. Many of these advances will be ready to field in the mid term, with the potential to strengthen U.S. forces significantly.

One key issue is the extent to which defense budgets in the future will allow for the acquisition of new technologies and associated weaponry in adequate numbers. Examples include:

- *Information warfare technologies.* Ongoing developments in computers, data systems, and information networking are greatly enhancing the speed, efficiency, and effectiveness of joint operations.

- *Missile defenses.* Whereas earlier enemy missiles could be destroyed only by nuclear warheads, emerging technologies permit kinetic-energy intercepts: literally, hitting a bullet with a bullet. They greatly enhance prospects for defending overseas forces and the U.S. homeland against ballistic missiles and cruise missiles.

- *Robotics.* U.S. forces are using unmanned aerial vehicles (UAVs) such as Predator for intelligence gathering. In future years, new technologies will permit some aircraft strike missions to be launched with unmanned combat aerial vehicles (UCAVs). In the distant future, robotics will be applicable to ground and naval operations as well.

- *Stealth aircraft technology.* The F-22, joint strike fighter, and F/A-18E/F have stealthy designs that will make them difficult to detect. In addition, both aircraft will have improved avionics, aerodynamic performance features, weapons payloads, and other enhancements, ensuring that they will be the best combat aircraft for many years to come.

- *New land warfare technologies.* Digitization will enhance the performance of tanks and infantry fighting vehicles. The Comanche helicopter, V-22 tilt-rotor Osprey, and Crusader artillery tube will improve Army and Marine Corps mobility and strike capabilities. Acquisition of lightweight vehicles will help speed the deployment of land forces, while providing infantry units with greater tactical mobility and firepower.

- *New ship designs.* Advances in power plants, armaments, electrical systems, and other areas facilitate design of surface warfare ships with both smaller crews and improved combat capabilities. One example is the DD-21 land-attack destroyer, which will be able to fire cruise missiles and long-range guns at littoral targets.

- *Ultra-smart weapons.* By drawing on inertial navigational systems, satellite data, and terminal seekers, the next generation of smart missiles and bombs will have greater lethality and effectiveness than those now in service today. New smart weapons will include the advanced Tomahawk cruise missile, joint air-to-surface standoff missile (JASSM), joint direct attack munition (JDAM), joint standoff weapon (JSOW), and sensor-fuzed weapon (SFW).

- *Precision deep-strike systems.* The ongoing joint surveillance target attack radar system (JSTARS) aircraft with moving target indicator radar is greatly enhancing the ability of U.S. forces to monitor the activities of enemy ground forces in their rear areas. The procurement of aircraft-delivered Skeet, multiple-launch rocket system (MLRS) delivered BAT (brilliant anti-armor submunition), and other smart cluster munitions will permit lethal attacks on mobile armored formations in near-real time, thereby destroying them much faster than previously had been the case.

- *Standoff capabilities.* B-1 bombers and naval combatants with long-range cruise missiles offer growing capabilities for standoff operations. Deep-strike systems have the same effect, allowing tactical combat aircraft and ground units to remain outside fire envelopes of enemy forces. Meanwhile, better defenses (including missile defenses) will enhance force survivability when closely engaging enemy units.

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sensors, and munitions. The effect can be to increase the efficiency and effectiveness of U.S. forces in a range of contingencies.

Steps to acquire better counter-WMD strike assets and weapons for defeating enemy antiaccess and area-denial strategies also can help in the mid term by allowing the United States to get greater mileage out of the forces that already exist, rather than build new forces or create entirely new generations of technologies. As one of the panels involved in the recent defense review pointed out, the Department of Defense can develop significantly better capabilities for fast, forcible entry by configuring only a small portion of its entire force posture for this mission. Provided a joint command structure is created and adequate command, control, communications, computers, intelligence, surveillance, and reconnaissance (C⁴ISR) systems are developed, a swift forcible entry effort can begin with massed cruise missile strikes from bombers and ships. Following this step can come insertion of a carrier task force, Patriot missile batteries, and air interceptors to create a protective air defense umbrella. Then reception facilities can be opened, followed by the flow of large air, ground, and naval strike forces. A fully sophisticated forcible entry capability might take 15 years or more to develop, but in the mid term, existing technologies and systems can be used to create a valuable interim capability.

New technologies will be arriving in the mid term that will help steadily broaden opportunities for making U.S. forces more adaptable.

The acquisition of ballistic missile defenses, global information systems, and space-based assets often is viewed as long-term transformation. If acquired in the next 5–10 years, they can contribute importantly to mid-term adaptability as well. Likewise, procurement of new weapons now emerging from the research and development pipeline can help enhance adaptability. For example, the F-22 and joint strike fighter can strengthen Air Force ability to retain control of the battlefield airspace, thereby allowing air strikes against mobile ground targets to have maximum impact. The Army Crusader artillery system and Comanche helicopter will greatly enhance the range and volume of its long-range fires, thereby allowing ground combat forces to maneuver and strike more powerfully. The Navy cooperative engagement system will enhance the capacity of carrier battle groups to survive enemy missile strikes and to use their F/A-18 E/F aircraft in joint operations in littoral areas.

Each new technology and associated weapon system must be evaluated on the basis of technical performance, affordability, cost-effectiveness, and operational role. As in the past, some weapons likely will be procured fully, others partly or slowly, and a few not at all. The key point is that when the emerging generation of technologies is seen as a whole, it offers an opportunity to improve U.S. forces significantly, rather than waiting 20 years for a distant generation of exotic technologies to emerge. Indeed, the act of fielding these

emerging technologies and gaining operational experience with them likely will be the best way to make sound judgments about distant technologies.

If the transition to these new technologies and doctrines is handled well, the effect can be to broaden the adaptable capacity of U.S. forces to perform a wider spectrum of military operations than now. This will be especially true for situations in which joint operations can be fully pursued, but it also will hold true in crises where different force mixes will be required. For example, creation of better deep-strike assets will enable the Air Force to handle a wider range of operations, including those in which ground forces may not be fully present or utilized. Conversely, development of digitized ground forces with better strike and maneuver assets will strengthen the capacity of Army and Marine forces to carry out operations in which their contributions are especially important. Likewise, naval forces will acquire an improved capacity to generate air and missile fires over not only the seas but also littoral areas, including in crises where enemy antiaccess efforts prevent Air Force and Army units from intervening swiftly. The key point is that owing to new technologies, U.S. military commanders will be given greater flexibility to tailor their force packages to the crisis at hand.

Reengineering the military by developing new organizational structures, operating procedures, and information systems also can be employed to increase flexibility in the mid term. The Army, for example, is digitizing as well as designing new brigades to deploy swiftly and bring adequate combat power with them. The Air Force is broadening its traditional structure to create composite wings that deploy a combination of fighters, bombers, and other assets. The Navy and Marines are networking carrier battle groups, amphibious ready groups, and other forces to operate together and to carry out joint missions with the other services. These efforts are being carried out under the mantle of *Joint Vision 2020*, which is focused on creating new-era capabilities for dominant maneuver, precision strikes, and other battlefield imperatives. To the extent they also enhance adaptability by providing for a wider scope of operations, forces will become better prepared and more effective in the mid term.

Other innovative ideas for reorganizing U.S. forces may merit consideration. Existing divisions, fighter wings, and carrier battle groups are inherited from the Cold War. Their effectiveness perhaps can be strengthened by employing information-era technologies to streamline and update them. For example, some analysts argue in favor of replacing Army divisions and brigades with new combat groups and joint command structures. Another idea is to add unmanned combat aerial vehicles to service fighter wings, thereby broadening force employment options. Ideas for the Navy include adding cruise missiles to submarines, buying smaller littoral ships, and employing carriers and amphibious assault ships in a wide range of missions. Such ideas must be examined carefully; while some may not prove attractive, others may justify a break from the past.

Reengineering for adaptability likely can also be applied to the U.S. overseas presence. The current presence of about 235,000 troops in Europe, Asia, and the Persian Gulf was designed a decade ago, mostly for the purpose of carrying out traditional border defense missions that are now fading. In all three theaters, a new overseas presence should be tailored to reflect new missions and new information-era force structures. Such a reengineered presence may be

The Military Instrument

The capabilities of the Armed Forces are based not only on their size and diversity, but also on their readiness, modernization, sustainment, and growing capacity to conduct joint operations. Together these strengths make the U.S. military the most effective in the world across a range of operations from the traditional to the ultra-modern. The impending challenge is keeping this hard-won status in an era in which doctrine, organization, and technology as well as geopolitics are undergoing change.

Army: 18 divisions (10 active/8 National Guard), 2 active armored cavalry regiments, and 18 separate National Guard brigades—a total of 1,035,000 military personnel (480,000 active/555,000 Reserve)

Navy: 12 carriers, 11 air wings (10 active/1 Reserve), 12 amphibious ready groups, 55 attack submarines, 116 surface combatants (108 active/8 Reserve)—a total of 461,000 military personnel (371,000 active/90,000 Reserve)

Marine Corps: 4 divisions (3 active/1 Reserve) and 4 air wings (3 active/1 Reserve)—a total of 212,000 military personnel (172,000 active/40,000 Reserve)

Air Force: 20 fighter wings (12 active/8 Reserve), 4 Reserve air defense squadrons, and 190 bombers—a total of 588,000 military personnel (354,000 active/234,000 Reserve)

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smaller and differently distributed than now. But it could provide a better means of pursuing U.S. strategic goals in the coming years.

The same judgment can be applied to allied forces in Europe and elsewhere, which need greater capability, adaptability, and interoperability that can be created through reengineering of existing assets. For example, European members of NATO possess over 50 mobilizable divisions and 3,000 combat aircraft, but few of them can be swiftly deployed outside their borders. If only 10–20 percent of them are reengineered for this purpose, they will greatly increase NATO flexibility for new-era missions. A combination of better mobility assets, logistic support, information systems, and precision weapons would greatly enhance the capacity of European forces to work with U.S. forces in new missions.

Transforming Wisely with New Technologies

The prospect of creating entirely new military technologies is what makes long-term transformation an appealing vision. Transformation is best pursued not as a separate endeavor unto itself, but instead as a natural progression of ongoing efforts to achieve capability and adaptability, which ideally should create a foundation for looking ahead and seeing clearly. For transformation to succeed, it must be guided by a coherent philosophy that blends future strategic requirements with new technologies. In recent years, transformation has become a major DOD activity, a long-term process of change aimed at producing new and better forces for the 21st century. It is animated by future missions, the revolution in military affairs, modern information systems, and new technologies that are altering the nature of warfare. The goal is to create a full-spectrum force that can dominate future battlefields by carrying out the precepts of *Joint Vision 2020* issued by the Chairman. This vision, however, is abstract: its specific contours

remain to be determined. Under the Pentagon's watchful eye, U.S. Joint Forces Command is responsible for joint experimentation, and the services are carrying out their own experimental efforts. A key challenge is to mesh these separate service efforts so that they produce true jointness in capability and adaptability in ways that wisely blend the new with the old.

The transformation effort is heavily influenced by the goal of using new information technologies and systems to greatly enhance the performance of U.S. forces on offense and defense. To this end, several information grids and networks are to be created and integrated in the near, mid, and long terms:

- A multisensor information grid will provide dominant awareness of the battlefield, including enemy forces and operations.
- A joint communications grid will network the operations of combat and support forces. Accompanying it will be an advanced command and control system to help plan force movement, employment, and sustainment.
- A sensor-to-controller-to-shooter grid will facilitate fires, battlefield movements, and engagement activities of forces.
- An offensive information operations capability will impede enemy force operations; and a defensive information capability will help protect sensors, communications, and networks from enemy interference.

These information systems promise to greatly improve the capacity of forces for joint operations as well as enhance interoperability with allied forces. They may also create new vulnerabilities in the process. While these systems are critical, the transformation process also involves the upgrade or redesign of force structures, platforms, and operations. Progress in this area will be key if future forces are to take full advantage of the enhanced information flows at their disposal in order to fight effectively on the modern battlefield. Ongoing DOD experimentation is designed to identify, test, and evaluate new approaches. It will play a key role in determining the blend of the old and new systems to adopt and the pace at which it is pursued.

The Army has proclaimed its intent ultimately to create a new Objective Force, which will be characterized by high-technology divisions that are more mobile, leaner, and more agile than now, but just as lethal and survivable as today's armored forces. The Navy and Marine Corps already have dominance over our sea lines of communication and are concentrating on new technologies to enhance their ability to operate *forward from the sea* and to gain continued access to the littoral. The Air Force is creating more capable and mobile expeditionary forces for traditional air campaigns as it transforms to an air and space force. Within about 20 years, the ultimate promise of these efforts is to create new-era forces that are quite different from and substantially more capable than those now deployed.

Because it is so portentous, transformation is an endeavor that must be guided wisely. While it offers immense promise, some critics fear that it will be slowed down by status-quo thinking. An equal risk is that it will proceed briskly but result in undesirable outcomes, including forces that are boldly innovative with glittering new technologies but that are strategically ineffective or vulnerable in new ways. A new force posture that can carry out one type of military operation brilliantly but lacks the flexible capacity for other missions likely would prove ineffective overall. Especially because transformation is a futurist process of experimentation

that does not yet have a clear destination, it should be seen as means to an end, not an end in itself. Its ultimate goal is to produce new-era military forces that are both capable and flexible. It should be judged by this standard, not by its frenetic intensity or its sweeping changes.

The need to act wisely is illuminated by two U.S. military transformations that have taken place during the past half-century. The first was revolutionary, and the second was evolutionary. The former took place just after the Korean War and was animated by the clear, single-minded goal of discarding old structures for conventional war in favor of configuring U.S. forces for theater and strategic nuclear war. During the late 1950s, the Department of Defense procured a large, expensive force of modern strategic bombers and intercontinental ballistic missiles (ICBMs) for long-range targeting. It also retooled all the services for tactical nuclear operations on the battlefield. The effort wholly transformed U.S. forces, ushering in new technologies, doctrines, and structures in a short period. But by the early 1960s, limited nuclear war was much less credible, a casualty of Soviet deployment of ICBMs and the brinkmanship of the Cuban Missile Crisis. In response, the United States embraced a new strategy of flexible response, which called for serious conventional options in the hope of avoiding escalation. The newly minted arsenal of tactical nuclear

Power Projection

The ability of the United States to swiftly project military power abroad plays a major role in its national security strategy for peace, crisis, and war. A key facet is the stationing of large joint forces in Europe, Asia, and the Persian Gulf—some **225,000** military personnel in total. Equally important is the ability to use prepositioned equipment, airlift, and sealift to deploy large reinforcements from the continental United States within a few weeks or months to theaters where vital national interests might be endangered.

Overseas presence includes approximately 16 percent of the total strength of the active force, providing a capacity to train with allies and engage with other countries and react immediately to crises and wars.

Europe: 109,000 military personnel; forces include 2 Army divisions (4 brigades), 1 Navy carrier battle group and 1 amphibious ready group, and 2.3 Air Force fighter wings

Asia: 93,000 military personnel; forces include 1 Army division, 1 Navy carrier battle group and 1 amphibious ready group, 1 Marine division and air wing, and 2.2 Air Force fighter wings

Persian Gulf: About 20,000 military personnel; forces include select Army units, 1 Navy carrier battle group and 1 amphibious ready group, and 1 Air Force fighter wing-equivalent

Strategic mobility forces: Prepositioned stocks maintained overseas help speed deployments from the United States in a crisis. Included is equipment for 8 Army brigades, 4 Marine brigades, and multiple air bases—distributed in Europe, Asia, and the Persian Gulf. Airlift includes 162 C-5s and C-17s; 88 C-141s; 418 C-130s; and 536 KC-10s/KC-135s. Sealift includes 112 DOD-owned ships, 198 U.S.-flagged commercial fleet ships, and 175 ships in effective U.S. control fleet. In addition to airlift and sealift, the civilian reserve air fleet program offers access to about 75 percent of commercial cargo-carrying capacity.

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weapons was incapable of supporting this fresh strategy: many had to be discarded in favor of forces that were again capable of winning conventional wars. That was the force that fought the Vietnam War.

The second transformation, pursued during the Carter and Reagan administrations, was less single-minded and boldly revolutionary, but ended more happily. In the mid-1970s, the bitter aftermath of the Vietnam War, U.S. forces were demoralized and ill-prepared for the new era of warfare then unfolding. The Carter administration initiated the process of force improvement as new technologies began arriving. While the Reagan administration is best known for the strategic defense initiative (SDI) and its nuclear policies, its well-funded efforts to strengthen U.S. conventional forces were equally important. By the late 1980s, U.S. forces emerged as the world's best, capable of crushing their opponents. Their transformation was led by improved versions of existing platforms—for example, M-1 tanks, F-15 and F-16 fighters, and nuclear-powered carriers—that arrived with path-breaking new capabilities. These platforms were mated with other new technologies—such as the airborne warning and control system and smart munitions—as well as better power-projection assets that enabled the services to forge new doctrines and structures. On the surface, the forces that emerged did not seem transformed: they looked similar to their predecessors. But they were transformed in the area that truly mattered: their capability to fight and win wars. That is the force that dominated Iraq in *Desert Storm*.

These two experiences of the past provide a frame of reference for thinking about how to pursue transformation now. One strategy, which might be called a rapid evolutionary approach, is to rely upon newly arriving legacy platforms (for example, the JSTARS aircraft, F-22, V-22 Osprey, joint strike fighter, F-18E/F, DD-21, Crusader, and precision munitions) and information technology to help create fresh doctrines and structures. This strategy likely will yield a steady, evolutionary transformation, with benefits that flow continuously over the coming 10–20 years, but no sudden, great leap forward. A second, more revolutionary strategy is the polar opposite: to skip much of this next generation of improved legacy platforms—on the premise that modernization is merely recapitalization and not true transformation—in order to pursue a great leap forward in technology and forces 20 years from now. In theory, this strategy could create dramatically different forces with new platforms and exotic technologies in the long term, such as unmanned combat aircraft, a new Army future combat vehicle, small carriers, and nanotechnology. But in the interim, it likely would produce a slower rate of improvement than the first strategy.

A choice likely must be made between these two strategies, because fiscal constraints will probably rule out pursuing both of them simultaneously. Based on the history of military transformation during the past 50 years, the rapid evolutionary path runs fewer risks than the revolutionary skip-a-generation approach, and it is more attentive to new strategic requirements in the foreseeable future. The United States is unlikely to have the luxury of a strategic pause to absorb the higher risks of the revolutionary approach. Even if the rapid evolutionary approach is chosen, however, the Department of

Defense needs to increase its R&D funding for revolutionary systems to assure that they are available for the force if they prove worthwhile. In this way, innovative ideas can be pursued without playing Russian roulette with the world's best military.

Regardless of the strategy selected, military logic and past experience suggest that future forces should remain multifaceted and flexible. They should not be tailored to support a single operational design that might prove fragile or ephemeral. New information systems and technologies are opening the door to long-distance, deep-strike systems that ostensibly can inflict high attrition on enemy forces. While these assets should be added to the inventory, they should not be embraced to the point where U.S. forces are optimized to employ them alone and cannot perform traditional missions that may prove more enduring than is commonly realized.

Especially because the pace of change is accelerating, defense strategy needs a vision for today and tomorrow. While no single term captures the challenge of matching new technologies with new force and requirements, the precepts of capability, adaptability, and transformation help perform this task. These precepts set forth key strategic goals, timelines for achieving them, and ways to harmonize them.

Obviously, progress will depend upon budget levels, including spending for procurement, research, and development. If shortfalls exist, priorities will have to be set and sacrifices made. But the necessity for priorities does not dilute the imperative need to establish a sensible, phased plan of improvements not only for the near term and long term, but for the critical mid term as well. No less than the long term, the mid term is a potentially dangerous period of world affairs in which the Armed Forces could find themselves caught short if they are not steadily improved in key ways.

To a significant degree, pursuit of new technologies, innovative force structures, and other programs can enable the Department of Defense to make effective use of available resources, thereby closing the gap between requirements and capabilities. If the military can fulfill this agenda, it likely will be able to keep the peace and win the Nation's wars. In the final analysis, nothing more can be asked of the Armed Forces, and nothing less should be expected.

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